INSTALLATION INSTRUCTIONS

PREH
ELECTRICAL ROTOTRANSLATING DOOR

Code PREH

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Remember that you are about to install a device in a vehicle driven by a disabled person. The device is therefore essential to make that person's life as normal and independent as possible.

Sure of your understanding, we are certain you will carry out the work taking maximum care in order to guarantee reliable and long-lasting use.

Summary

N.B. The following instructions describe a general installation of this device. Specific photos and indications concerning to the specific vehicle will be given along with the kit.

Technical characteristics

A) General characteristics

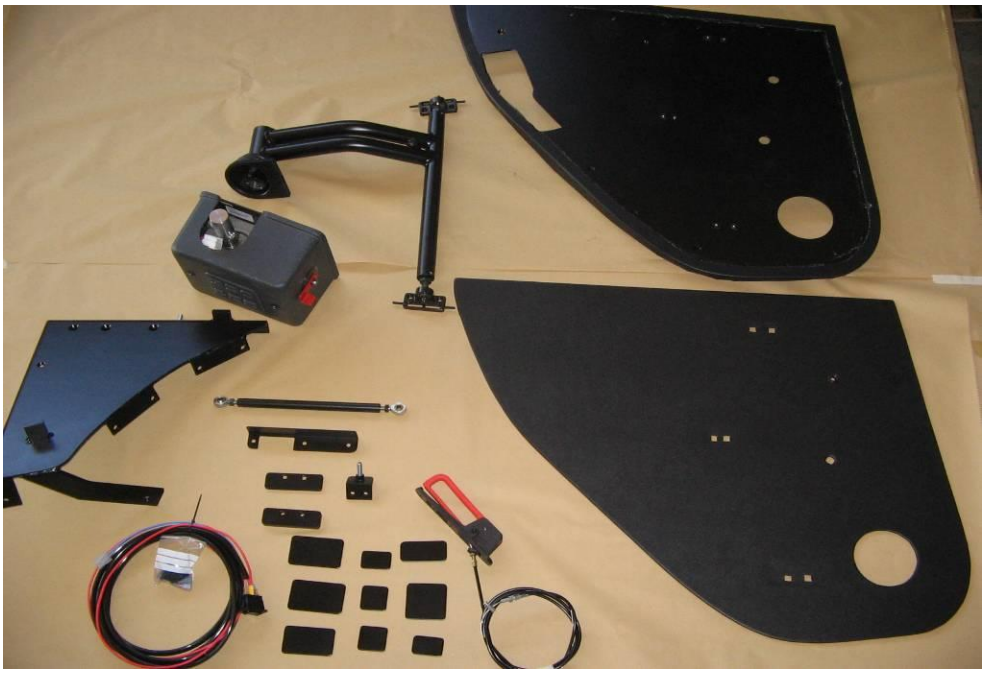
- Electric motor with emergency system for the manual opening

B) Electrical characteristics

- Power supply: 12Vcc
- Max Absorption 15A
- Limit switches integrated to the electric motor

Kit parts:

- N. 1 Vibration-damping element
- N. 1 Panel made of Masonite
- N. 1 Sheet panel
- N. 1 Holecover-cap
- N. 1 Harness of the rototranslating door
- N. 1 Motor plate extra
- N. 8 Thicknesses for the head
- N. 1 Vehicle door-kit, composed by:
  - N. 1 Motor
  - N. 1 Internal emergency handle
  - N. 1 Completed guiding arm
  - N. 1 Abs Cover
  - N. 1 Rubber cap
  - N. 1 Completed brackets
  - N. 1 Door shaft
- N.1 Small parts bag (specific for the vehicle)
- N.1 Ferrous bag (specific for the vehicle)



General installation instructions

In order to achieve a correct installation, it is necessary to carry out a series of operations following an accurate chronological sequence.

Preparating the vehicle

- Before disconnecting the vehicle battery, it is necessary to carry out some electrical checks, depending on the type of vehicle the installation will be made on, which are here described:
  - Check if the internal light and the signal lamp of the left rear door opened are leaded by a button located on the bodywork, near the car door seal, or directly by a contact connected to the door lock.
  - Disconnect the connector of the electrical system of the door and check the right working of the power window control, the power door locks, the speaker, the internal light and the lamp that notifies the opened door.

  N.B. If there are malfunctions in the working of the power window controls, due to the disconnection of the electrical connector of the left rear window control, it is necessary to keep it connected, insulating it and placing it inside the new panel which will be installed, paying attention that it will not interfere with the window during its way up and down.

- **Disconnect the battery.**

- Remove the internal panel of the left rear door and the internal coatings near the installation zone (for example : rubber door seal, covering plastics, seat, left rear seat back,…)(*Photo 1*)

Photo 1

N.B. Take care and attention to memorize the various dismounting sequences of the internal particulars, in order not to face complications during the re-installation process.

- Once the internal coating panel is removed, check which cables are going to be lengthened in order to change their travel (for example : speaker, power window control, power door locks, etc…).

- Remove the left rear door rod (*Photo 2,3*).

Photo 2

Photo 3

Installation of the rototranslating door

- Temporarily fix the new sheet panel (*Photo 4*), referring to the already made holes on the vehicle (for example threaded hole for handle-door fixing, fixing holes of the clips to the original panel, etc…) in order to find further fixings on the door through threaded bushes or rivets.

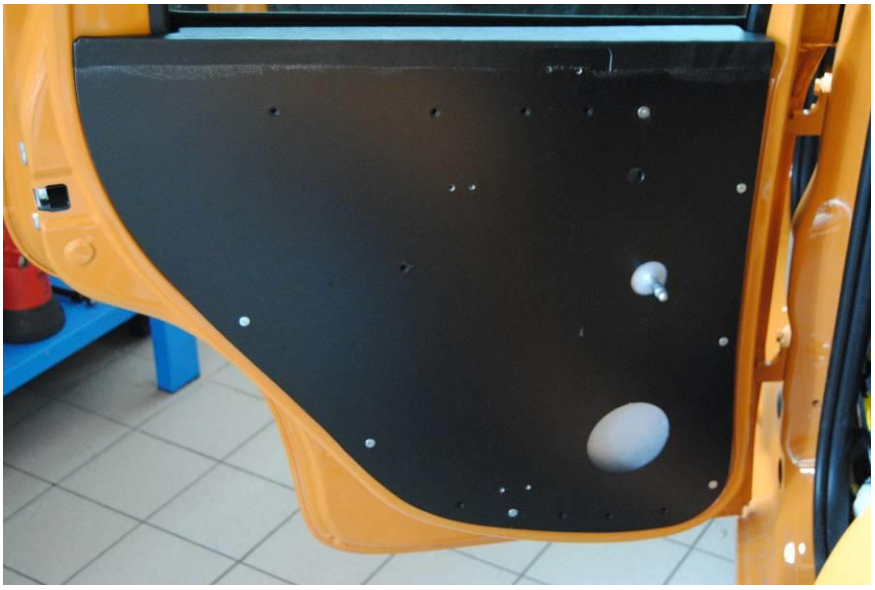


Photo 4

- Note on the door the fixing points, remove the sheet panel and prepare to the possible insertion of the threaded bushes or rivets.

- Before definitely fixing the sheet panel, identify the cables to lengthen and then elongate the hardness, which exits from the door. Lengthen them enough to modify their travel inside the particulars you are installing, taking care to keep inside the new sheet panel the welds of junction of the cables.

  N.B.: Use a material with the same characteristics of the original one (not supplied in the kit).

- Definitely fix the new sheet panel to the right fixing points through threaded bushes or rivets.

- Stick the coating panel to the previously fixed sheet panel using a polyurethane sealant (*Photo 5,6*) or other adhesives.

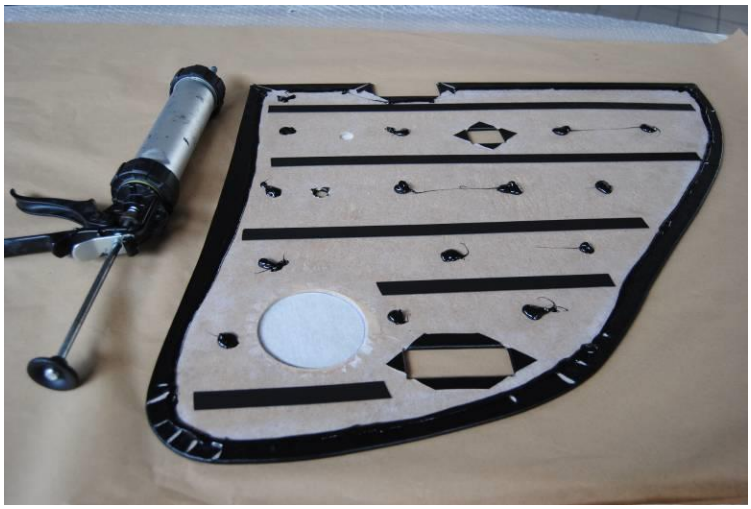


Photo 5

Photo 6

- Fix the speaker to the panel.

N.B.: Sometimes it is necessary, due to its encumbrances which could interfere with the device, to replace the original speaker with another one with different size.

On some of the latest vehicle it is necessary to install the speaker, otherwise an anomaly will be notified on the dashboard.

- Before starting the installation on the motor plate, near the left rear wheel arch, it is necessary to identify the right location, by fitting the two matchings welded on it to the vehicle bodywork, using the fixing hole of the belt attachment as a point of reference (*Photo 7*).

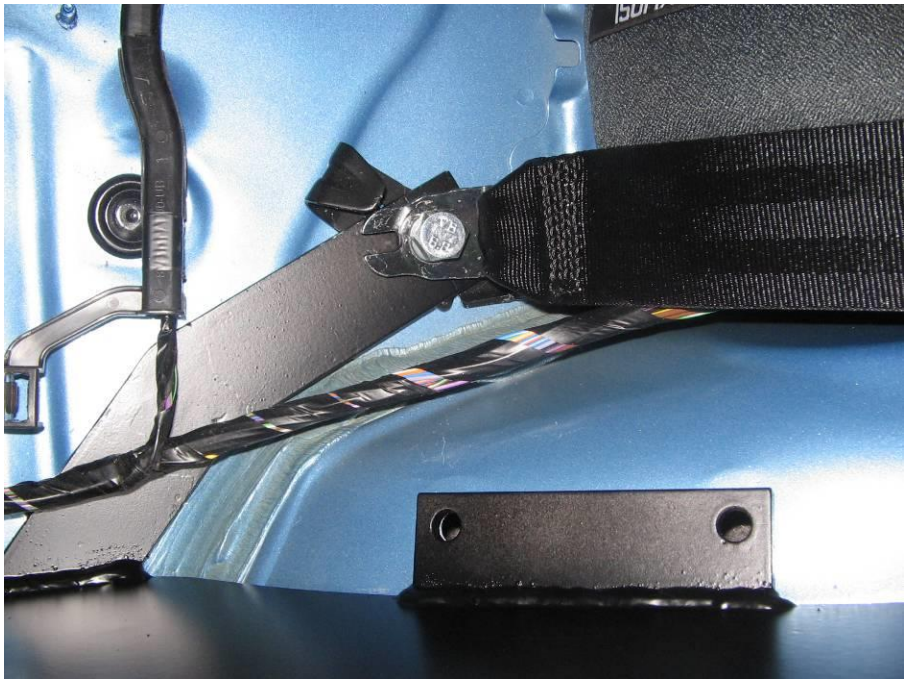


Photo 7

- Effectuate the fixing holes on the wheel arch where there are the holes of the fixing brackets of the motor plate. (*Photos 8,9)*.

Photo 8

Photo 9

N.B. If possible, fix the motor plate bracket with bridge screws, self-locking nut and washer. Use threaded bushes for the holes made on boxes or sheet.

- Definitely fix the motor plate (*Photo 10).*

Photo 10

Installation of the motor on the plate

- If previously removed from the plate, fix the motor.

  N.B. If necessary, due to internal space purposes, before fixing the motor, remount the seat and the seatback of the left rear seat (in the case of single seats).
  Take care to place the rubber safety cap on the shaft before inserting the rotation arm.

- Before positioning the motor support, it is necessary to remove the fixing pivot of the arm from the shaft, taking the Seeger out. Untie the rotation shaft by working on the electric motor, blocking it temporarily with a strap.
  Insert the arm on the shaft by matching the two holes, insert the fixing pivot of the arm and place the blocking Seeger (*Photos 11,12,13*).

Photo 11

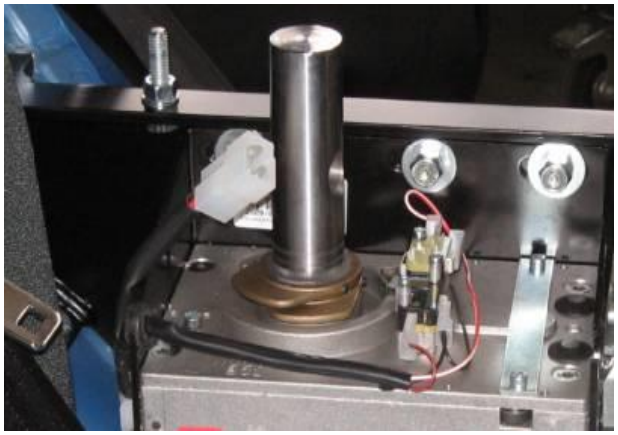


Photo 12

Photo 13

- Fix the arm to the panel on the door using the fixing screws and the relative supplied thicknesses (already fixed on the panel)(*Photos 14,15*).

Photo 14

- Tighten the four safety grub near the arm using a 3mm hex key (*Photo 16*).

Photo 16

- Fix the supporting bracket of the rod, previously removed, to the sheet panel using the two hex head M6x20mm screws, washers and grower supplied in the kit (*Photo 17*).

Photo 17

- Fix the rod of the door to the supporting bracket on the panel and the motor plate, and the fix everything with a M8 self-locking nut in correspondence with the M8 screws already made on the bracket and the plate (*Photo 18)*.

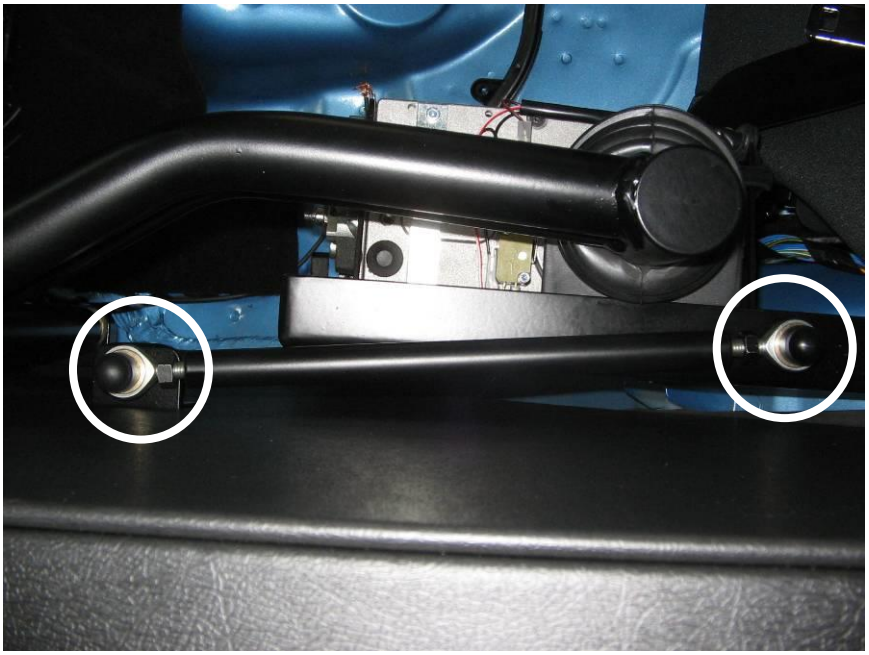


Photo 18

- Temporarily tighten the screws of the vertical register (*Photo 19*) and take out the original screws on the upright (hinges) (*Photo 20).*

Photo 19

Photo 20

- Simulate the opening of the door unhooking the original handle.

- With the door opened, start connecting the electrical cables. Fix the fuse holder in the engine compartment in an easily-accessible place (*Photo 21*).

Photo 21

- Connect the red cable (2.5mm² section) of the harness to the fuse holder, protecting it with the right sheath (*Photo 22*).

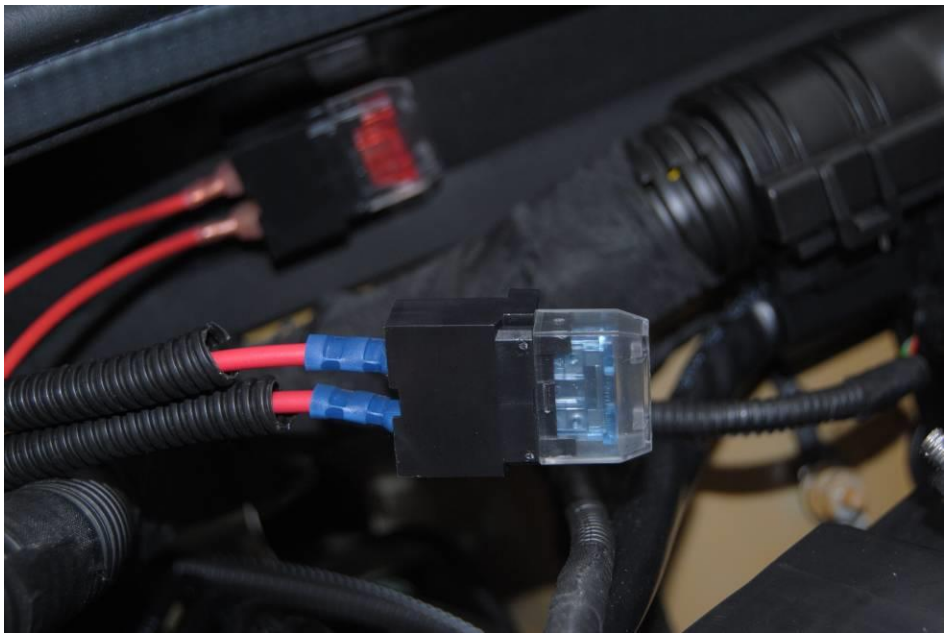


Photo 22

- Connect the fuse holder to the positive pole of the battery using a cable with 2.5mm² section.

- Fix the button which opens and closes the door to the dashboard or to the upright (as the customer desires) , shaping on it a rectangular eyelet (*Photos 23,24*).

Photo 23

Photo 24

- Pass the harness from the switch to the motor, passing inside the cockpit, under the moquette or under the heel pad plastics. Bundle the switch to the original harness of the vehicle (Photos 25,26).

Photo 25

Photo 26

- Connect the 3 ways connector of the harness to the motor connector.

- Take the arm of the door at a distance of 15mm from the bodywork to define the position of maximum opening of the door (*Photo 27*).

Photo 27

- Position the lower limit switch cam, located on the shaft, against the tab of the relative limit switch , make it trigger and block it tightening the M4 grub with a 2mm hex key (*Photo 28*).

Photo 28

- Definitely remove the original hinges of the door.
- Manually close the door until all the locks are hooked.
- Position the upper limit switch cam, located on the shaft, against the tab of the relative limit switch , make it trigger and block it tightening the M4 grub with a 2mm hex key.
- Open the door at about half its opening.
- Remove the closing hook of the original door from the bodywork (*Photos 29,30)*.

Photo 29

Photo 30

- Re-hook the emergency motor block taking the strap out (*Photo 31)*.

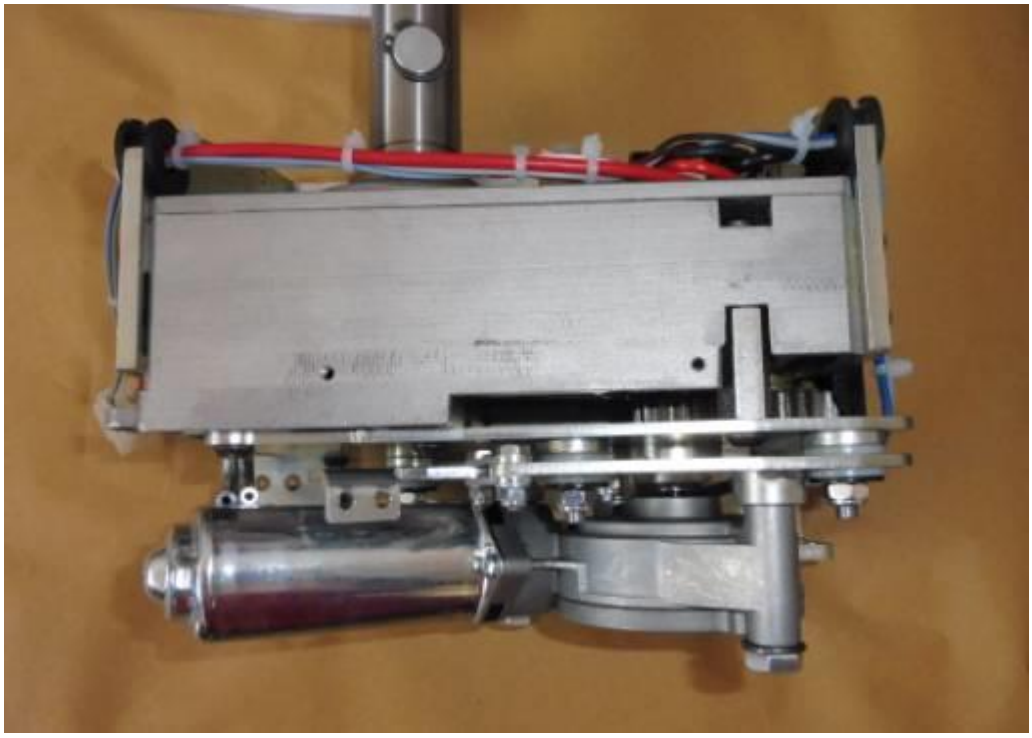


Photo 31

- Connect the battery of the vehicle and try the electrical door using the button, until the door is completely opened, in order to check that it does not interfere with the arm and the bodywork. As consequence, control the registration of the cam.

- Completely close the door controlling the right position towards the front door and the door seal. As consequence, control the right registration of the limit switch cam.

N.B. During this process take care about possible collisions with the bodywork of the vehicle.

- Go on with the regulations of the door, in order to restore its original position, working on the regulation screws of the arm of the door (*Photos 32,33,34,35)*.

Photo 32

Photo 33

Photo 34

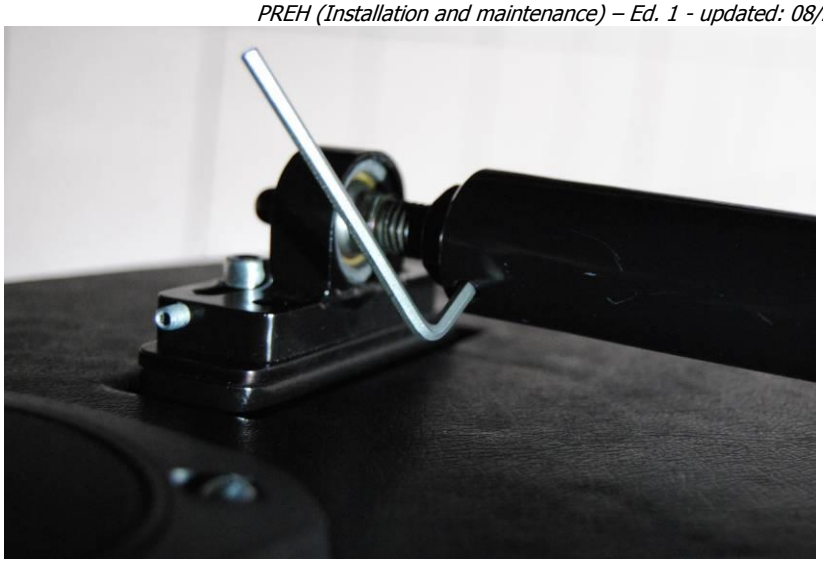


Photo 35

- Whenever it is necessary to add a rubber pad, fix it to the bodywork near the lower part of the door seal to get the correct closure of the door (*Photo 36)*.

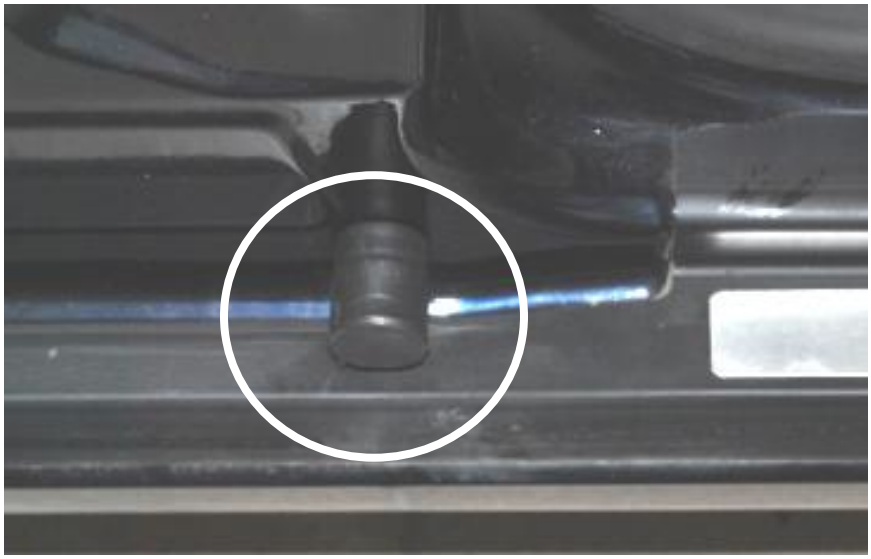


Photo 36

- In order to inhibit the working of the electric control button, which opens the left door, with the front left door closed, add a button which, thanks to its position, stops the connection of the limit switches (*Photo 37)*.

Photo 37

- Modify , if necessary, the covering plastics of the wheel arch in correspondence with the motor plate, shaping it in the right way (*Photo 38)*.

Photo 38

- Stick and seal, in correspondence with the uncovered holes, due to the dismantle of the hinges, the hook , the lock and the original harness, the black aluminum caps supplied in the kit, with polyurethane sealant (*Photos 39,40,41)*.

Photo 39

Photo 40

Photo 41

- Place the emergency opening handle a shown in *Photo 42*, fixing it to the bodywork through the supplied bracket (dismantle the handle of the bracket if necessary) using the suitable fixing screws.

Photo 42

Pass the connecting sheath near the space used for the door harness, taking care not to excessively bend it, until reaching the attachment on the motor.
Cut the sheath not used, fix with heat-shrinkable sheath the terminal and connect it to the motor.
Insert the steel cable inside the sheath and the emergency handle and make it slide.
Fix the steel cable to the emergency motor block using the supplied clamp (*Photo 43)*.

Photo 43

- Modify and trim the covering plastic carter (*Photo 44)* of the motor, so that it does not interfere with the rear seat and with the bodywork of the vehicle, then fix it to the motor with the supplied screws.

Photo 44

- Seal, using an appropriate polyurethane sealant, the screws of the motor plate in order to avoid water infiltrations (*Photo 45)*.

Photo 45

- Remount the cabinet-making and the coatings previously removed or modified..

  N.B. Take care to protect all the drillings on the bodywork from the corrosion.

- Tweak eventual scratches caused during the installation of the various parts.

- Carry out a road test with the vehicle arranged with the device, reaching the speed of about 120 km/h for a little space, in order to find possible vibrations or air-infiltrations from the seals of the door.

What to do if …

1. *Pressing the opening or closing button, the door does not move:*

   - Check the full opening of the left front door and the activation of the button.
   - Check the integrity of the 15A fuse in the engine compartment or near the fuse holder.
   - If the wheelchair loading robot VSCHO is installed, check that the sliding carriage lays in a backward position, because it is supplied with a limit switch that allows the working of the door only with the carriage in a completely closed position.

2. *During the opening or closing operation the door does not move, but the electric motor is clearly working because the noise of its rotation is audible:*

   - Check the position of the emergency manual unblock-lever.

3. *During the opening or closing operation of the door you do not manage to close or open it completely, causing the interruption of the fuse:*

   - Check that there are not objects that hinder the movement or that the limit switches are correctly regulated.

If your system has a problem that is not listed, quickly contact the nearest Handytech Centre.

MAINTENANCE

First check: Km. 1.500 or 3 months

- Check the tightening of the fixing bolts of PREH to the vehicle and the door.
- Check the tightening of screws and bolt of PREH.
- Check the lubrication of the sliding points.
- Control the electrical connection between the battery and the system, checking that there are not oxidations on the contacts.
- Check the right working of the emergency unhook-lever and of the restore-lever.
- Check the right closure of the door.
- Check the right working of the system.
- Check the integrity of the harness which allows the working of the power window control and the speaker.
- If necessary carry out some regulations on the register points to optimize the closure of the door.
- **Carry out a road test to check possible noises or backlashes.**

Controls to be done annually

- Repeat all the checks done at 1500 Km.

NOTA BENE:

After 2 years it is advisable, together with CARROZZERIA 71 S.r.l., to check the system state and substitute any parts that need to be replaced.
Unfortunately, when the guarantee ends the maintenance program is at your discretion, but our advice is to follow it scrupulously because neglect can cause system faults, problems and create dangerous situations while driving. The device maintenance interventions, both when covered by guarantee and not, are at the full charge of the client.

WARRANTY: 24 MONTHS OR 80,000 KM

Spare parts

CODE	DENOMINATION	QUANTITY